

**DEPARTMENT OF  
PUBLIC HEALTH AND HUMAN SERVICES  
EMERGENCY MEDICAL SERVICES AND TRAUMA SYSTEMS SECTION**



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## **Montana Preventable Mortality Study**

### **INTRODUCTION**

The Emergency Medical Services and Trauma Systems Section of the Montana Department of Public Health and Human Services is undertaking a third Preventable Mortality study of deaths from mechanical trauma in 2008. An initial study of 1990 trauma deaths, prior to implementation of a voluntary trauma system in Montana, concluded that approximately 13% of traumatic deaths were preventable. A second study, conducted for 1998 trauma deaths, revealed an improvement in both the rate of preventable deaths and the rate of inappropriate care but concluded that "the degree and nature of inappropriate care remain a concern." This third study will analyze deaths from mechanical trauma occurring in 2008 and compare the rates of preventable mortality and inappropriate care to those of the first two studies.

### **OBJECTIVES**

Evaluate effectiveness of the State-wide trauma system and the provision of trauma care to injured patients; inclusive of pre-hospital through hospital phases of care.

Identify EMS/trauma care issues which will help drive development of regional and state-wide, data-driven performance improvement strategies to improve trauma care and trauma system development.

### **BACKGROUND**

Injuries are the leading cause of death for ages 1-44 years in Montana. Montana's 2007 injury death rate was 85 per 100,000; 43% higher than the national rate of 59 per 100,000. For young Montanans  $\leq 18$  years of age in 2007, the injury death rate was 22 per 100,000; 16% higher than the national rate of 19 per 100,000.

In 1992, the first rural preventable mortality study was completed in Montana utilizing 1990 data. In that study, a multidisciplinary review panel examined 324 deaths from mechanical trauma. The results of that study revealed that the overall preventable death rate for the state was 13%. For deaths that occurred in the hospital, the preventable death rate was 27% and the proportion of these cases that received inappropriate care was 68%. The findings of the 1992 Montana study did not differ from studies previously conducted in areas without an organized trauma care system.

In 2000, a second preventable mortality of 1998 trauma deaths was conducted and compared with the 1992 study in order to evaluate whether early implementation of a voluntary trauma system in a rural state reduced preventable mortality and rates of inappropriate care. This study examined 347 deaths, each being reviewed by an expert panel utilizing the same case review guidelines and methodology as used in the first study. Of the 347 cases studied, 2 (1%) were judged frankly preventable and 23 (7%) were potentially preventable - yielding an overall preventability rate of 8%. Inappropriate care was determined in 125 (36%) of all cases and in 54% of the hospital deaths.

## INCLUSION CRITERIA

All deaths from mechanical trauma occurring January 1, 2008 – December 31, 2008 will be included, provided sufficient data exist to determine preventability. There were 933 injury-related deaths in Montana for 2008. Of these, 438 were excluded due to non-mechanical trauma, late effects of trauma and cases of suicide that did not survive to medical care. Death certificates for the remaining 495 will be reviewed to ascertain if trauma was the cause of death.

## MAJOR DATA SOURCES

The study staff is responsible for obtaining the records to conduct the study which includes:

**Death Certificate:** Including patient identifier, socio-demographics, time and location of death, time and location of injury, coroner/medical examiner involvement, whether autopsy was completed, primary and contributory causes and manner of death.

**Ambulance Patient Care Record:** Including pre-hospital times, mechanism of injury, vital signs, assessment findings, interventions implemented, delays encountered and patient destination.

**Hospital Medical Record:** Including mode and time of arrival, emergency department assessment findings, vital signs, interventions, diagnostic procedures, surgical consultation, transfer or disposition information, surgical intervention, complications, ICU stay, ICU complications, discharge or death information and discharge diagnoses including medical conditions prior to injury.

**Autopsy Report:** Including anatomic and physiologic anomalies, co-morbid factors, quantification of injuries, description of injuries, tissue pathology, factors identified which contributed to death, and toxicology / blood alcohol levels.

**Investigative Report:** Including a description of events leading up to incident, description of event, type of vehicle or weapon, mechanism of injury, where patient was pronounced dead and by whom. May include coroner, uniform motor vehicle crash report and law enforcement agency investigative information.

## CONFIDENTIALITY

The HIPAA Privacy Rule recognizes the legitimate need for public health authorities to have access to protected health information. The Privacy Rule permits covered entities to disclose protected health information (PHI), without authorization, to public health authorities. [45 CFR 164.512(b)]

All data sources will be handled in a strictly confidential manner. Confidentiality protection for this study being conducted under the auspices of the Montana Department of Public Health and Human Services is provided under [MCA 50-6-415]. Data and department reports concerning the quality of trauma care and quality improvement are not subject to discovery in a civil action and may not be introduced into evidence in a judicial or administrative proceeding.

## STUDY STAFF

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